

LEGIONELLOSIS IN NEVADA, 2003-2012

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Edition 1.1

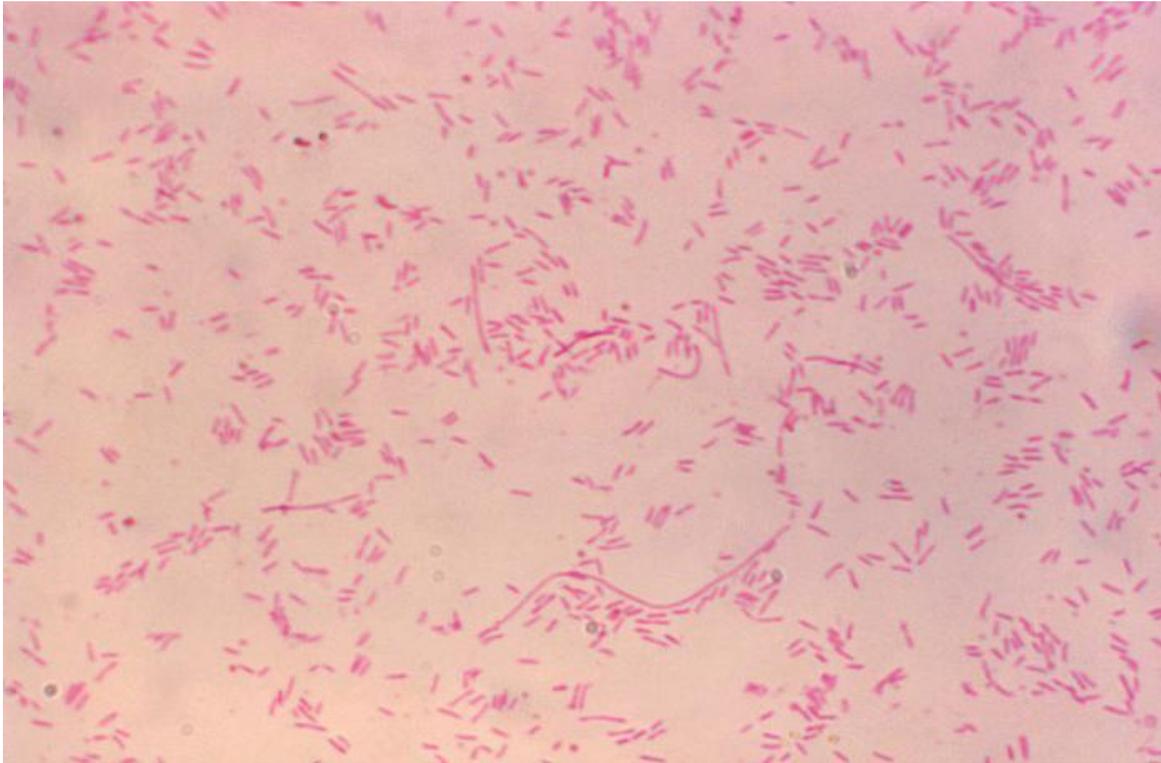


Photo: Centers for Disease Control and Prevention/ Dr. Gilda Jones



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Purpose

The purpose of this report is to provide a general overview of the incidence and recent trends of legionellosis among Nevada residents. The report also includes Nevada data collected from cases of legionellosis from 2003 to 2012. Legionellosis is listed as one of Nevada's reportable diseases pursuant to [NRS 441A](#) (1). Legionellosis reporting is further regulated by [NAC 441A.580](#) (2).

Legionellosis

Legionellosis, more commonly known as Legionnaires' disease, is a potentially fatal disease caused by inhaling an aerosolized water particle containing the bacteria *Legionella*. The disease is not transmitted via person-to-person contact. The disease occurs when an individual is exposed to a warm aquatic environment that is favorable to bacterial growth. The disease is not, however, associated with natural environments, such as lakes, rivers, ponds, or waterfalls. Potential sources of infection from legionellosis include, but are not limited to, central air conditioning systems, humidifiers, hot tubs, misters, showers, whirlpools, and ice making machines (3).

Symptoms of legionellosis usually appear 2-10 days after exposure, and patients may exhibit cough, chills, fever, muscle aches, headache, and loss of coordination and appetite. As the disease progresses, the patient may develop pneumonia, which usually requires hospitalization and has an average case fatality rate of 10-15%. In some outbreaks, the case fatality rate has been as high as 30%, but this is unusual. Pontiac fever is a milder version of Legionnaires' disease that occurs within 3 days after exposure with symptoms of fever, headache, and muscle pain, but no pneumonia (3).

To diagnose Legionnaires' disease, a sample from respiratory secretions, lung tissue, or pleural fluid must be collected and tested for presence of the bacteria. Treatment for legionellosis is with specific antibiotics for up to 3 weeks. Patients with Pontiac fever do not benefit from antibiotics (3).

Most infections in the United States occur in outbreak situations or from U.S. travelers contracting and bringing back the disease from foreign countries. Elderly people, especially those who smoke or have respiratory problems and those with compromised immune systems, are at higher risk of contracting the disease because they are less able to fight off the infection than healthy persons. There is no vaccine for Legionnaires' disease or Pontiac fever; therefore, most efforts focus on disease prevention. Recommendations for prevention are basic but include avoiding localized outbreaks and high risk areas in addition to cleaning and sanitizing anything that utilizes water and has the potential to incubate the *Legionella* bacteria, such as those appliances mentioned above. For instance, one outbreak which started via a shower exposure led to the recommendation that persons should allow the water in their shower to run for 1 minute before stepping in. People cannot completely prevent Legionnaires' disease, but they can decrease their risk by following these prevention recommendations (3).

Summary

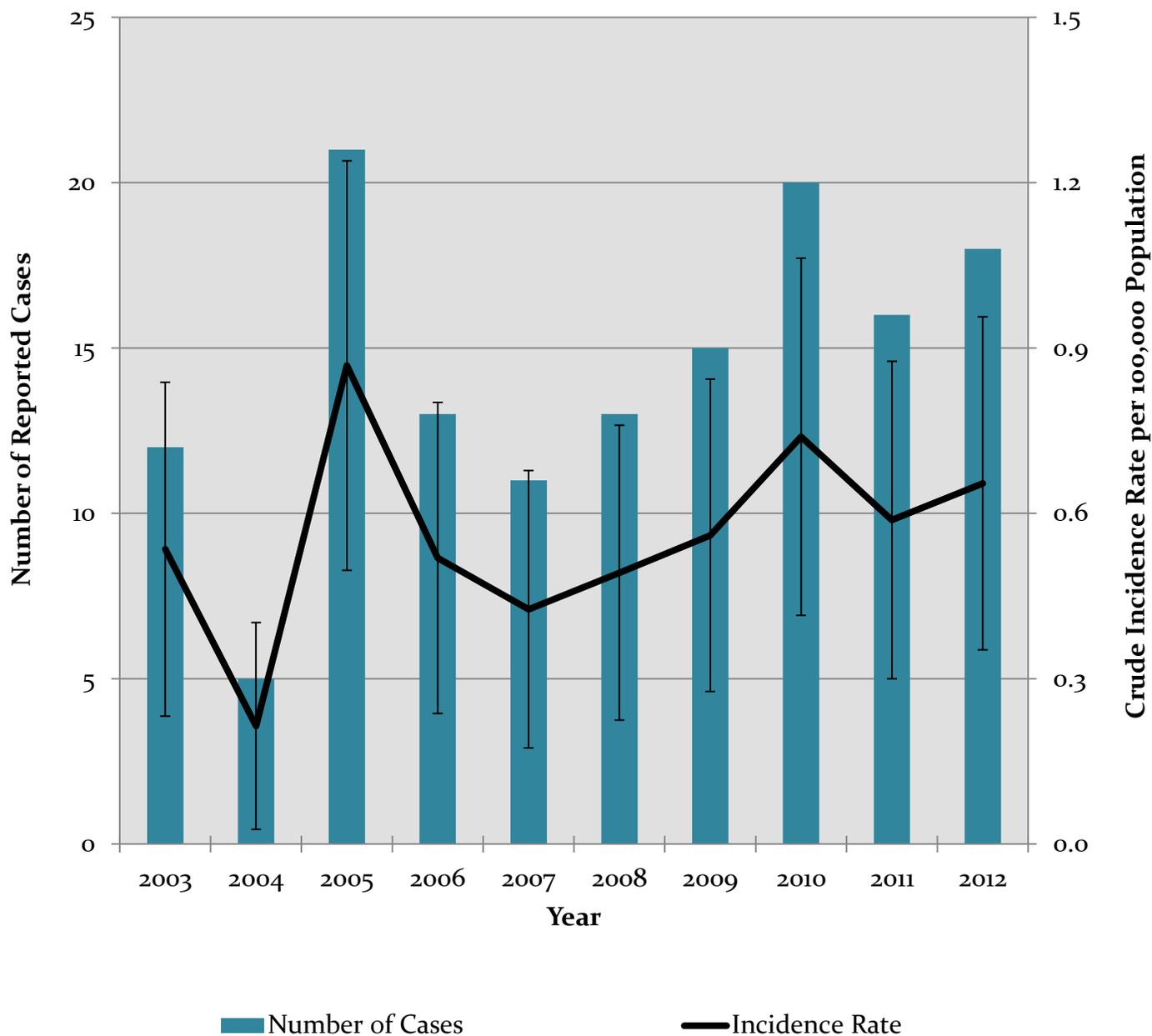
From 2003 to 2012, the annual number of reported legionellosis cases in Nevada ranged from a low of 5 cases in 2004 to a high of 21 cases in 2005. Over the ten years, a total of 144 cases were reported. The annual crude incidence of legionellosis ranged from a low of 0.2 cases per 100,000 population in 2004 to a high of 0.9 cases per 100,000 population in 2005, and this difference was statistically significant. Between 2007 and 2010, there were steady increases in both the number of reported cases and the annual crude incidence rates, and the crude incidence rate in 2010 was also significantly higher than in 2004. The crude incidence rate from 2003 to 2012 was 0.6 cases per 100,000 population. There are no Healthy People 2010 or Healthy People 2020 objectives for legionellosis.

The rural and frontier counties had a significantly higher age-adjusted incidence rate (1.1 cases per 100,000 population) than the overall age-adjusted incidence rate for the state (0.5 cases per 100,000 population) and Washoe County Health District (0.2 cases per 100,000 population). The difference in age-adjusted incidence rates between the state and Washoe County Health District was also significant.

Between 2008 and 2012 (years for which monthly data is available), there was no discernable monthly or seasonal trend for reported legionellosis infections. The number of reported cases ranged between 0 and 4 cases per month, depending on the year.

From 2003 to 2012, there were no cases of legionellosis reported for persons 14 years of age and younger, and there were 13 total cases reported for persons 15-39 years of age. Elderly people are at higher risk of contracting legionellosis (3). Although the 40-64 year age group had the highest case count of 79 during the 10-year time period with a crude incidence rate of 1.0 cases per 100,000 population, persons 65 years of age and older had a significantly higher incidence rate of 1.7 cases per 100,000 population and a total count of 52 cases. This group also had the highest age-specific rate for any single year with a crude incidence rate of 2.9 cases per 100,000 population in 2005.

Figure 1. Number of Reported Cases and Crude Incidence Rates of Legionellosis in Nevada: 2003-2012



The crude incidence rate in Nevada from 2003 to 2012 was 0.6 cases per 100,000 population.

Figure 2. Age-Adjusted Incidence Rates of Legionellosis in Nevada and Nevada Health Districts: 2003-2012

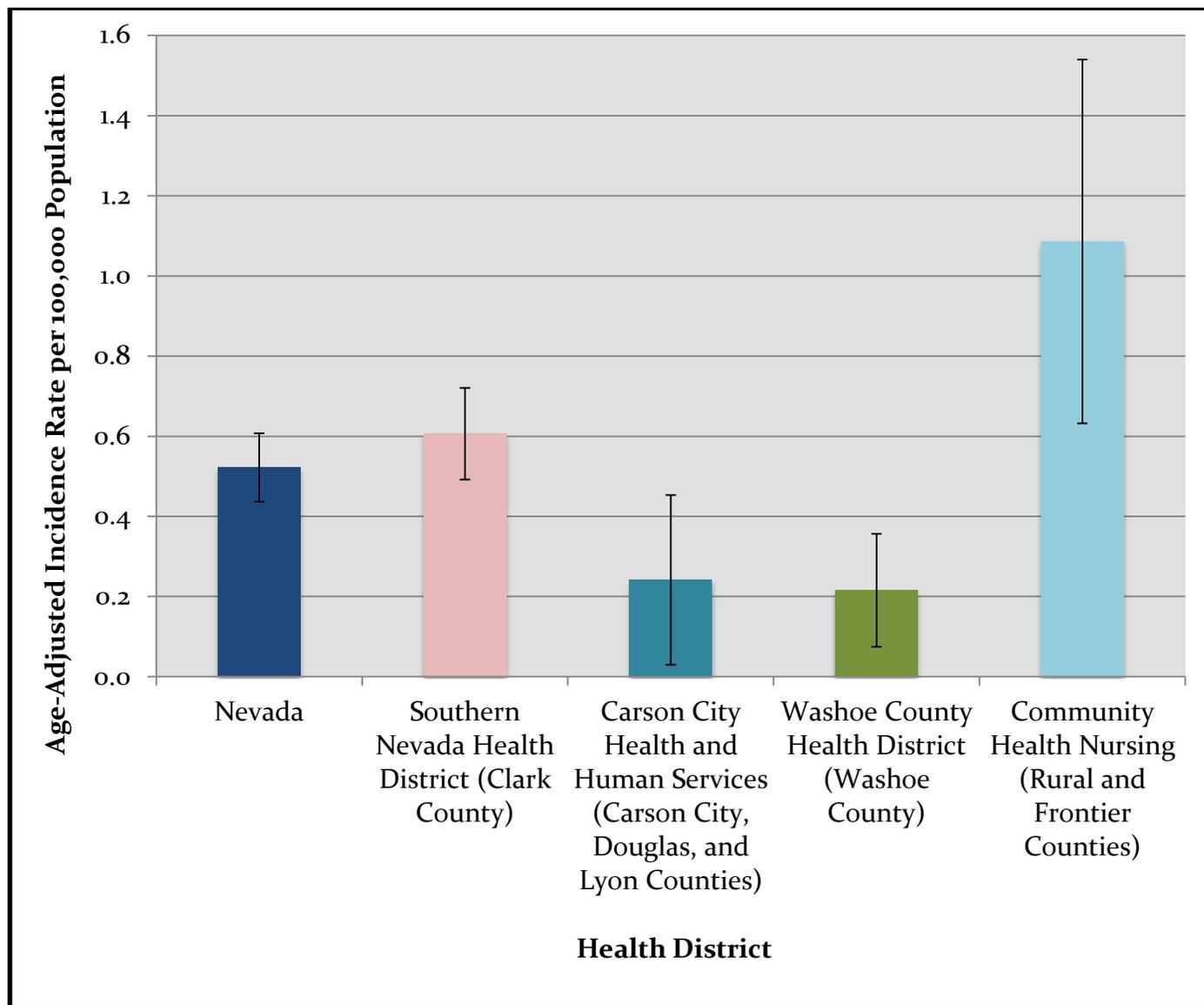
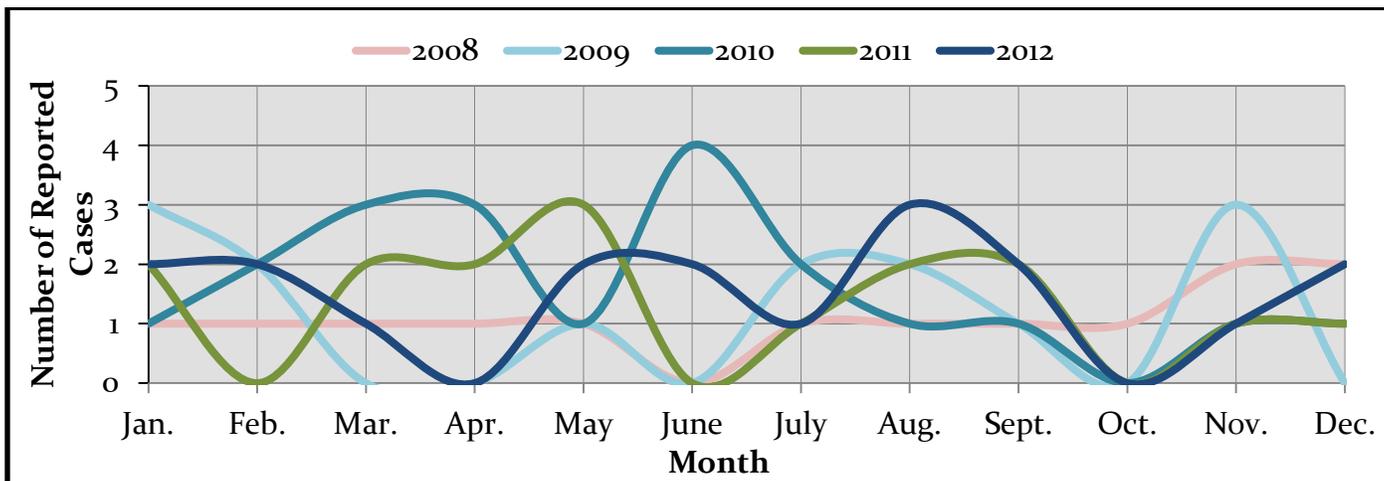


Figure 3. Number of Legionellosis Cases Reported in Nevada by Month: 2008-2012



Figures 4A-G. Number of Reported Cases and Crude Incidence Rates of Legionellosis in Nevada by Age Group: 2003-2012

Figure 4A. Legionellosis Cases in Infants Under 1 Year of Age

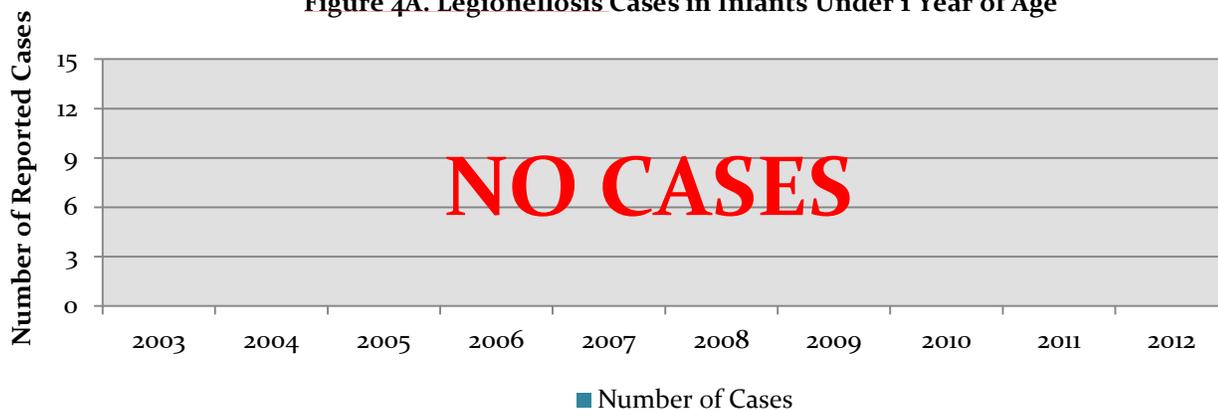


Figure 4B. Legionellosis Cases in Children 1-4 Years of Age

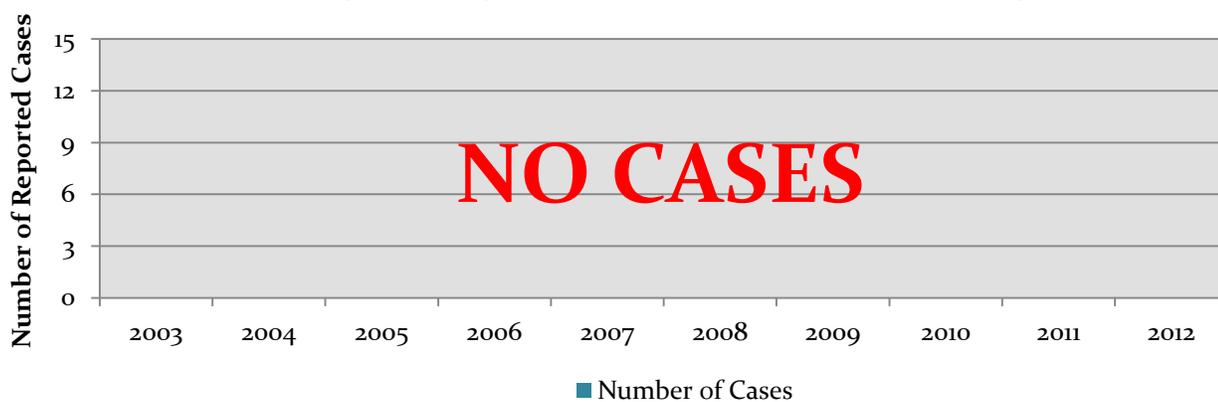


Figure 4C. Legionellosis Cases in Persons 5-14 Years of Age



Figure 4D. Legionellosis Cases in Persons 15-24 Years of Age

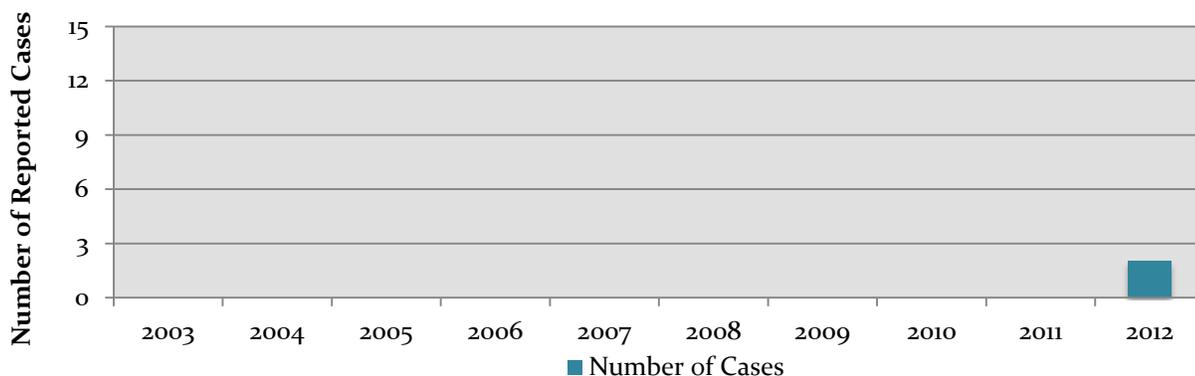


Figure 4E. Legionellosis Cases in Persons 25-39 Years of Age

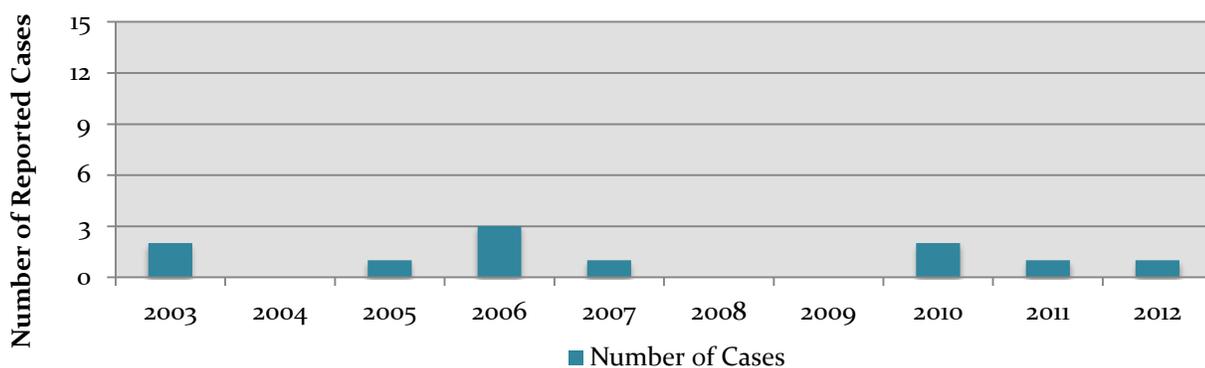


Figure 4F. Legionellosis Cases and Incidence Rates in Persons 40-64 Years of Age

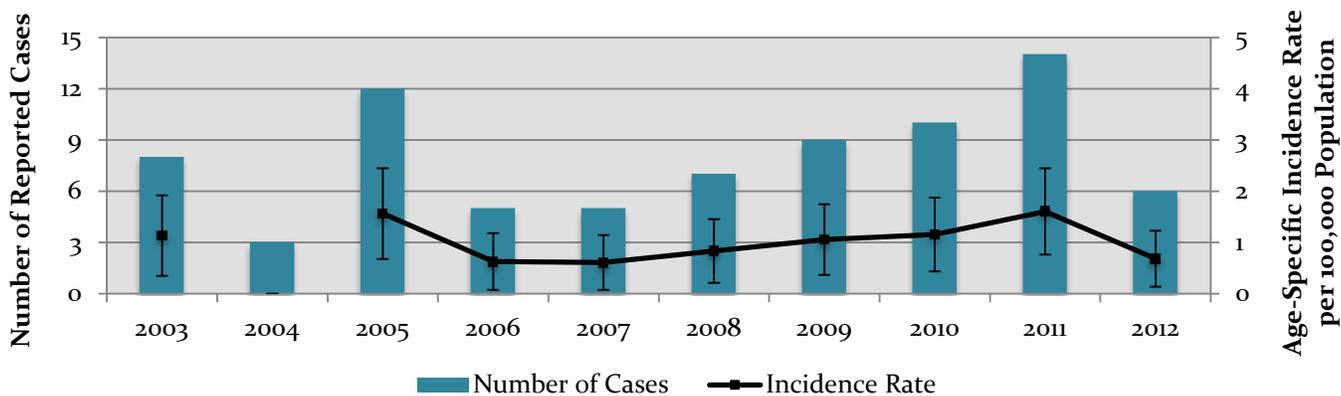
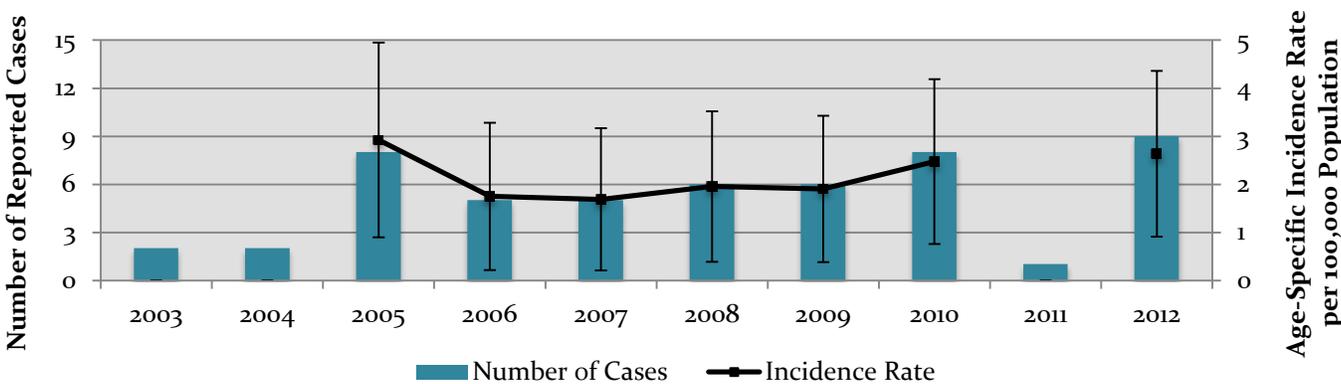


Figure 4G. Legionellosis Cases and Incidence Rates in Persons 65+ Years of Age



Technical Notes

All Nevada data from 2003 to 2012 came from reported *Legionella* infections among Nevada residents (4, 5). The CDC and the Council of State and Territorial Epidemiologists case definition of legionellosis encompasses all cases classified as suspected or confirmed; all cases of legionellosis used for this report follow this definition (6). Population estimates were obtained from Nevada State Demographer's Office (7). Age-adjusted rates per 100,000 population were calculated using the 2000 U.S. standard population. Sufficient case counts were not available to obtain age-adjusted incidence rates for racial/ethnic groups; therefore, racial/ethnic distributions of incidence are not presented in this report. When used for rates, error bars represent 95% confidence intervals. The Keyfitz method was used to calculate confidence intervals of age-adjusted rates (8). Due to their inherent unreliability, rates were not calculated for case counts lower than five.

Sources

1. Nevada Revised Statute (NRS) 441A. <https://leg.state.nv.us/NRS/NRS-441A.html>
2. Nevada Administrative Code (NAC) 441A.580. <http://www.leg.state.nv.us/nac/NAC-441A.html#NAC441ASec580>
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